OIB - DC-8 11/08/14 Science Report

Aircraft:
DC-8 (See full schedule)
Date:
Saturday, November 8, 2014
Mission:
OIB
Mission Location:
Antarctica
Mission Summary:

F14 Slessor 1a

Accomplishments

- Low-altitude survey (1,500 ft AGL) over Slessor Glacier, Bailey Ice Stream, Shackleton Range and the Recovery Ice Stream.
- ATM, albedo, KT-19, snow, Ku-band, MCoRDS, gravimeter, and DMS were operated on the survey lines.
- Collected additional high altitude data on transits to and from the survey area.
- Ramp pass at Punta Arenas airport after takeoff at 1,300 ft AGL.
- Satellite tracks: ICESat orbit 0404.
- Repeat Mission: 2011.

Instrument	Operated	Data Volume	Instrument Issues/Comments
ATM	yes	33 GB	None.
CAMBOT	yes	56 GB	None.
DMS	yes	65 GB	None.
Snow Radar	yes	359 GB	None.
Ku-band Radar	yes	359 GB	None.
MCoRDS	yes	1.8 TB	None.
KT-19	yes	10 MB	None.
Albedo	yes	2.4 GB	None.
Albedo camera	yes	335 MB	None.
Gravimeter	yes	2.0 GB	None.

Mission Report (Michael Studinger, Mission Scientist)

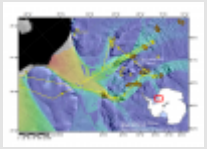
Today's flight intended to sample the grounding line and lower part of Slessor Glacier and Bailey Ice Stream using all IceBridge low-altitude sensors. We also overfly two subglacial lakes on the lower Recovery Glacier, and an ICESat track connecting the two glacier basins. We also flew over an ice core drill site on Berkner Island?s Thyssenhöhe.

After transiting over the Drake Passage, the Antarctic Peninsula, the southern Weddell Sea and the Ronne Ice Shelf (all clouded in) we descended to Berkner Island and began our survey by collecting data over an old ice core site at Thyssenhöhe. We continued over the Filchner Ice Shelf and started our two profiles along the Slessor Glacier, followed by a line along the Bailey Ice Stream. We turned towards an ICESat line over the Theron Mountains (with view of the Coalseam Cliffs) that connected the Bailey Ice Stream with the Slessor Glacier, the Shackleton Range and the Recovery Ice Stream, where we surveyed two subglacial lakes. We had a mix of glaciological objectives for today?s mission ranging from ice dynamics along flow lines, surface elevation changes along ICESat orbits, bedrock mapping of the critical grounding line zones, and subglacial lakes, which are believed to lubricate the bed below the ice streams allowing for rapid flow of ice from the interior towards the ocean. Both, ATM and DMS collected data in cloud free areas over the Weddell Sea from 36,000 ft. MCoRDS collected high-altitude data as well.

LiDAR data collection started 11/08/2014 15:33 UTC and ended at 19:54 UTC. In total we collected 4.3 hours of LiDAR data. Conditions in the survey area were perfect. ATM recorded 100% surface returns.

Images:

Figure 1: Today's trajectory in yellow. Subglacial lakes are outlined by



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Submitted by:
Michael Studinger on 11/08/14

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Page Editor: Erin Justice

NASA Official: Bruce A. Tagg
